

**SECRET**  
**ORCA/T**

25X1A  
**HANDLE VIA**   
**CONTROL SYSTEM**

**2363-66**

**Copy** *11 of 11*

**23 FEB 1966**

25X1A

**MEMORANDUM FOR : Director of Central Intelligence**

**SUBJECT : Audible Warning Signal for ORCA/T Aircraft**

1. This memorandum is for information only.
2. This memorandum is in response to a comment made at your 10 February 1966 staff meeting wherein it was suggested that consideration be given to installing audible, in addition to visible, warning devices available in the ORCA/T cockpit to serve as an additional aid to the pilot in case of trouble with critical aircraft components or attitudes.
3. The ORCA/T emergency pilot warning system includes two audible warning signals. One is a steady tone stall warning signal which is heard when the aircraft angle of attack reaches +14 degrees. The other is an audible landing gear warning signal when (a) the throttles are retarded below minimum cruise setting, (b) the landing gear is not in the down and locked position, and (c) the aircraft altitude is below 10,000 feet  $\pm$  500 feet. The remainder of the emergency warning system is tied in to an annunciator panel mounted on the lower instrument panel in the cockpit which contains individual warning lights that indicate malfunctions or failures of equipment and systems. Illumination of any individual light also illuminates a red master caution light 2 1/4" x 3/4" directly in front of the pilot on the upper portion of the instrument panel which is very bright and essentially impossible to ignore. Thirty-four individual pieces of equipment or systems are currently monitored on the annunciator panel.
4. It is interesting to note that the F-104 airplane was the first to use an annunciator panel for monitoring

**ORCA/T**  
**SECRET**

**HANDLE VIA**   
**CONTROL SYSTEM**

25X1A

**SECRET**  
**SECRET**

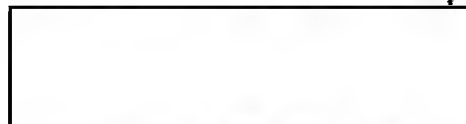
25X1A

☐-2262-66

malfunctions or failures of equipment and systems. As part of this monitoring system a test signal was used to alert the pilot whenever an annunciator panel light came on. However, at the specific request of the pilots, this tone signal was removed; the reason being that the tone signal was almost continuous due to the nature of the annunciator panel monitoring function. As an example, fuel pressure is monitored and a light comes on when the pressure falls to a certain level. However, the level selected to activate the light is well above the minimum allowable and is only to inform the pilot of the status. When the pressure returns to the minimum acceptable, the light goes off. Other items such as oil temperature, hydraulic pressure, etc., are similarly monitored so that the lights are continually going on and off.

5. The experience gained from the F-104 program was very instrumental in defining the present A-12 warning system. Nevertheless, another assessment is being made of the OXCART emergency cockpit warning system to assure that the pilots have the maximum assistance possible to identify as early as practicable impending critical malfunctions or failures.

25X1A



**ALBERT D. WHEELON**  
**Deputy Director**  
**for**  
**Science and Technology**

Signature required.

25X1A

(Signed) ☐

AD/OSA

25X1A

ASD/OSA/☐:sp (21 Feb 66)

- Cy 1,2 - DCI
- 3 - DD/S&T chrono
- 4,5 - DD/S&T Registry
- 6 - D/OSA
- 7,8 - D/TECH/OSA
- 9 - D/TECH/OSA
- 10 - ASD/OSA chrono
- 11 - RB/OSA

**SECRET**  
**SECRET**

**HANDLE VIA** ☐  
**CONTROL SYSTEM**

25X1A